What is claimed is:

1. A method of manipulating waveform data, said method comprising the steps of:

(a) defining a background trend for non-target data;

(b) comparing a plurality of phase angles of target data to the background trend; and

(c) selecting the phase angle of the target data having the maximum deviation from the background trend.

2. The method according to claim 1,

step (b) including plotting the target data and the background trend.

3. The method according to claim 2,

step (b) including calculating the distance between the plotted target data and the plotted background trend for each phase angle of the target data.

4. The method according to claim 3,

step (c) including selecting the phase angle of the target data having the maximum calculated distance from the background trend.

5. The method according to claim 1; and

(d) using the selected phase angle of the target data to predict a selected property of a target area represented by the target data.

6. The method according to claim 5,

said selected property providing important information about the target area when the value of the selected property is within a critical range,

said non-target data representing a background area where the value of the selected property is outside the critical range.

7. The method according to claim 6,

said target data and non-target data being seismic data representing subterranean target and background areas, respectively.

8. The method according to claim 7,

said selected property being a rock property of a subterranean formation that is relevant in determining whether or not hydrocarbons can be profitably produced from the subterranean formation.

9. A method of filtering sinusoidal target data representing a target location using sinusoidal background data representing a non-target location, said method comprising the steps of:

(a) plotting a plurality of phase angles of the background data;

(b) defining a background trend for each plotted phase angle of the background data;

(c) plotting a plurality of phase angles of the target data;

(d) calculating the distance between each phase angle of the plotted target data and the background trend with equivalent phase angle; and

(e) selecting the phase angle of the target data with the maximum calculated distance.

10. The method according to claim 9,

steps (a) and (c) including plotting the corresponding phase angles of the background and target data using common coordinates.

11. The method according to claim 10,

said target data and background data being seismic data.

12. The method according to claim 11,

said common coordinates being various seismic attributes of the background and target data,

said various seismic attributes being predictive of a certain rock property of interest.

13. The method according to claim 12; and

(f) using the selected phase angle of the target data to predict the rock property of interest.

14. The method according to claim 13,

said rock property of interest providing important information about the target location when the value of the rock property of interest is within a critical range,

said non-target location having a value of the rock property of interest which is outside the critical range.

15. The method according to claim 14,

said rock property of interest being relevant in determining whether or not hydrocarbons can be profitably produced from the target location.

16. A method of filtering target seismic data representing a target subterranean location using background seismic data representing a background subterranean location, said target and background seismic data including information about a certain rock property of interest, said rock property of interest providing important information about the target location when the value of the rock property of interest is within a critical range, said background seismic data indicating a value for the rock property of interest that is outside the critical range, said method comprising the steps of:

(a) plotting a plurality of phase angles of the background seismic data;

(b) defining a background trend for each phase angle of the plotted background seismic data;

(c) plotting a plurality of phase angles of a first sample of the target seismic data;

(d) for each plotted phase angle of the first sample, calculating a distance to the background trend of corresponding phase angle; and

(e) selecting the phase angle of the first sample with the largest calculated distance.

17. The method according to claim 16; and

(f) repeating steps (c) through (e) for a plurality of other samples of the target seismic data.

18. The method according to claim 17; and

(g) using the selected phase angle of said first sample and said plurality of other samples to predict the rock property of interest at the target subterranean location.

19. The method according to claim 18,

said rock property of interest providing information that is relevant in determining whether or not hydrocarbons can be profitably produced from the target subterranean location.

20. A method of predicting rock properties of a subterranean formation using reflection seismic data and well log data, said method comprising the steps of:

(a) generating reflection seismic traces from the reflection seismic data;

(b) generating synthetic seismic traces from the well log data;

(c) correlating the reflection seismic traces with the synthetic seismic traces using a plurality of common seismic attributes of the reflection and synthetic seismic traces, said correlation including the substeps of:

(c1) plotting a plurality of phase angles of a first sample of the reflection seismic data;

(c2) calculating a distance between the plotted first sample and a background trend for each of the phase angles of the first sample; and

(c3) using for said correlation, the phase angle of the first sample having the maximum calculated distance; and

(d) assigning well log data associated with the synthetic seismic traces to the reflection seismic traces based on said correlation.

21. The method according to claim 20,

substep (c1) including plotting the reflection seismic data using selected seismic attributes of the reflection seismic data,

said selected seismic attributes being predictive of a rock property of interest,

said rock property of interest being predictive of the ability to profitably produce hydrocarbons from the subterranean formation.

22. The method according to claim 20; and

(c4) repeating steps (c1) through (c3) for a plurality of other samples of the reflection seismic data.

23. The method according to claim 20; and

(c5) plotting a plurality of phase angles of the background trend,

said plotted phase angles of the background trend corresponding to the plotted phase angles of the first sample of the reflection seismic data.

24. The method according to claim 20,

step (d) including assigning a statistical distribution of the well log data associated with the synthetic seismic traces to the reflection seismic traces.

25. The method according to claim 20; and

(c6) quantizing the data from the synthetic and reflection seismic traces into an equal number of synthetic and reflection data subcells so that each reflection data subcell corresponds to one synthetic data subcell based on the values of the common seismic attributes of the data from the reflection and synthetic seismic traces.

26. The method according to claim 25,

step (d) including assigning well log data associated with the synthetic data subcells to reflection seismic data points landing in corresponding reflection data subcells.

27. A computer program including electronically executable instructions for carrying out the method of claim 1.

28. A computer program including electronically executable instructions for carrying out the method of claim 9.

29. A computer program including electronically executable instructions for carrying out the method of claim 16.

30. A computer program including electronically executable instructions for carrying out the method of claim 20.